CLAIMS

1. A method of preventing or controlling bovine mastitis, which method comprises treating at least teats of the animal with an effective antimicrobial amount of:

A) a composition comprised of an aqueous microbiocidal solution of one or more active halogen species, which solution is a derivative product in an aqueous medium of (i) bromine, chlorine, and bromine chloride, or any two or all three thereof, and (ii) a water-soluble source of sulfamate anion; or

B) a composition comprised of an aqueous microbiocidal solution of one or more active halogen species, which solution is a derivative product in an aqueous medium of at least one 1,3-dihalo-5,5-dialkylhydantoin in which one of the halogen atoms is a bromine atom and the other halogen atom is a chlorine or bromine atom, and in which when both halogen atoms are bromine atoms, one of the alkyl groups is a methyl group and the other alkyl group contains in the range of 1 to about 4 carbon atoms, and when one of the halogen atoms is a bromine atom and the other halogen atom is a chlorine atom, the alkyl groups, independently, each contain in the range of 1 to about 4 carbon atoms; or

C) a composition comprised of an aqueous microbiocidal solution of A) and an aqueous microbiocidal solution of B).

2. A method as in claim 1 wherein the composition is applied in the form of a teat dip, as a wash, or in the form of a spray.

3. A method as in claim 1 wherein the composition is applied in the form of a foam.

4. A method as in any of claims 1-3 wherein the composition further comprises:

D) at least one thickener; or

E) at least one water-soluble polymeric film-forming agent; or

F) at least one emollient or humectant.

5. A method as in claim 4 wherein the composition comprises at least two of D), E), and F).

6. A method as in claim 4 wherein the composition comprises each of D), E), and F).

7. A method as in any of claims 1-6 wherein the treating is carried out using a composition of A).

8. A method as in claim 7 wherein the composition of A) is formed by a reaction in water between (i) bromine, (ii) bromine chloride, (iii) bromine and chlorine where the molar amount of bromine exceeds the molar amount of chlorine, or (iv) a mixture of any two or all three of (i), (ii), and (iii), and a water-soluble source of sulfamate.

9. A method as in claim 8 wherein the reaction is performed with the water at a pH of at least about 10.

10. A method as in claim 9 wherein the reaction is performed using bromine chloride or a mixture of bromine chloride and bromine, wherein the sulfamate source is an alkali metal sulfamate, and wherein the pH is maintained by use of a water-soluble sodium or potassium base.

11. A method as in any of claims 1-6 wherein the treating is carried out using a composition of B).

12. A method as in claim 11 wherein the solution of B) is formed from at least one N,N'-bromochloro-5,5-dialkylhydantoin in which the alkyl groups, independently, each contain in the range of 1 to about 4 carbon atoms.

13. A method as in claim 11 wherein the solution of B) is formed from N,N'-bromochloro-5,5-dimethylhydantoin.

14. A method as in claim 11 wherein the solution of B) is formed from at least one 1,3-dibromo-5,5-dialkylhydantoinin which one of the alkyl groups is a methyl group and the other alkyl group contains in the range of 1 to about 4 carbon atoms.

15. A method as in claim 11 wherein the solution of B) is formed from 1,3-dibromo-5,5-dialkylhydantoin.

16. A composition adapted for preventing or controlling bovine mastitis, which composition comprises:

A) an aqueous microbiocidal solution of one or more active halogen species, which solution is a derivative product in an aqueous medium of (i) bromine, chlorine, and bromine chloride, or any two or all three thereof, and (ii) a water-soluble source of sulfamate anion; or

B) an aqueous microbiocidal solution of one or more active halogen species, which solution is a derivative product in an aqueous medium of at least one 1,3-dihalo-5,5-dialkylhydantoinin which one of the halogen atoms is a bromine atom and the other halogen atom is a chlorine or bromine atom, and in which when both halogen atoms are bromine atoms, one of the alkyl groups is a methyl group and the other alkyl group contains in the range of 1 to about 4 carbon atoms, and when one of the halogen atoms is a bromine atom and the other halogen atom is a chlorine atom, the alkyl groups, independently, each contain in the range of 1 to about 4 carbon atoms; or

C) an aqueous microbiocidal solution of A) and B);

wherein the composition additionally contains at least one of the following components:

D) at least one thickener; or

E) at least one water-soluble polymeric film-forming agent; or

F) at least one emollient or humectant.

17. A composition as in claim 16 wherein thecomposition is in the form of a dip, wash, spray, or foam.

18. A composition as in either of claims 16 or 17 wherein the composition comprises at least two of D), E), and F).

19. A composition as in either of claims 16 or 17 wherein the composition comprises each of D), E), and F).

20. A composition as in any of claims 16-19 wherein the aqueous microbiocidal solution of the composition is a solution of A).

21. A composition as in claim 20 wherein the solution of A) is formed by a reaction in water between a water-soluble source of sulfamate and (i) bromine, (ii) bromine chloride, (iii) bromine and chlorine where the molar amount of bromine exceeds the molar amount of chlorine, or (iv) a mixture of any two or all three of (i), (ii), and (iii).

22. A composition as in claim21 wherein the reaction is performed with the water at a pH of at least about 10.

23. A composition as in claim22 wherein the reaction is performed using bromine chloride or a mixture of bromine chloride and bromine, wherein the sulfamate source is an alkali metal sulfamate, and wherein the pH is maintained by use of a water-soluble sodium or potassium base.

24. A composition as in any of claims 16-19 wherein the aqueous microbiocidal solution of the composition is a solution of B).

25. A composition as in claim 24 wherein the solution of B) is formed from at least one N,N'-bromochloro-5,5-dialkylhydantoinin which the alkyl groups, independently, each contain in the range of 1 to about 4 carbon atoms.

26. A composition as in claim25 wherein the solution of B) is formed from N,N'-bromochloro-5,5-dimethylhydantoin.

27. A composition as in claim 24 wherein the solution of B) is formed from at least one 1,3-dibromo-5,5-dialkylhydantoin in which one of the alkyl groups is a methyl group and the other alkyl group contains in the range of 1 to about 4 carbon atoms.

28. A composition as in claim27 wherein the solution of B) is formed from 1,3-dibromo-5,5-dialkylhydantoin.

29. A method of preventing or controlling bovine mastitis, which method comprises

1) applying at least to teats of the animal, an effective antimicrobial amount of a composition as in any of claims 16-28 having a pH in the range of about 6 to about 9; and

2) after a non-irritating, non-harmful contact time of not more than about 3 minutes, washing at least the areas of the animal to which the composition was applied so as

to remove the applied antimicrobial amount of the composition from said areas.

30. A method as in claim 29 wherein said pH is in the range of about 6 to about 8 and wherein said contact time is not more than 2 minutes.

31. A method as in either of claims 29 or 30 wherein said contact time is not more than about 15 seconds.